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**EP 1298607 A2**

**WO 2002/004080 A1**

**US 6168520 B1**

(58) Field of Search

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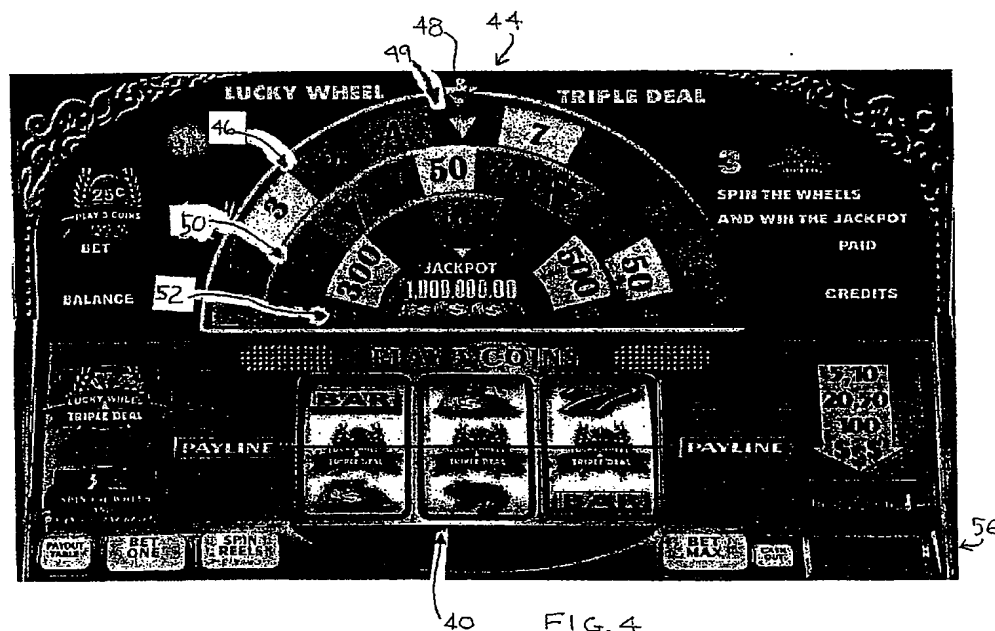
INT CL<sup>7</sup> A63F 9/24, G07F 17/32 17/34

Other: Online via EPODOC, WPI AND JAPIO

(54) Abstract Title

**Gaming machine**

(57) A reel type gaming machine comprises a supplementary bonus game having spinning wheel selection means. The selection means comprise three hierarchical concentric wheels bearing indicia representing awards. During the bonus game a first selection is made from a first wheel 46 which may be an award or a promotion to a second wheel 50 bearing prizes of greater value. Similarly promotion to a third wheel 52 may occur whereupon a jackpot may be won. The wheels may be mechanical or displayed on a video screen and may be arranged adjacent to one another.



GB 2 387 703 A

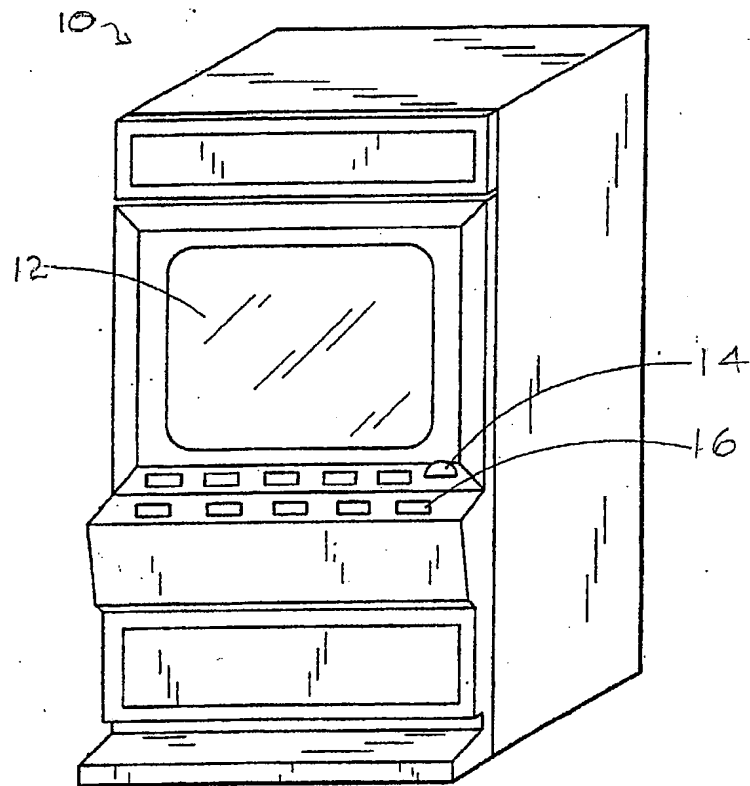


FIG. 1

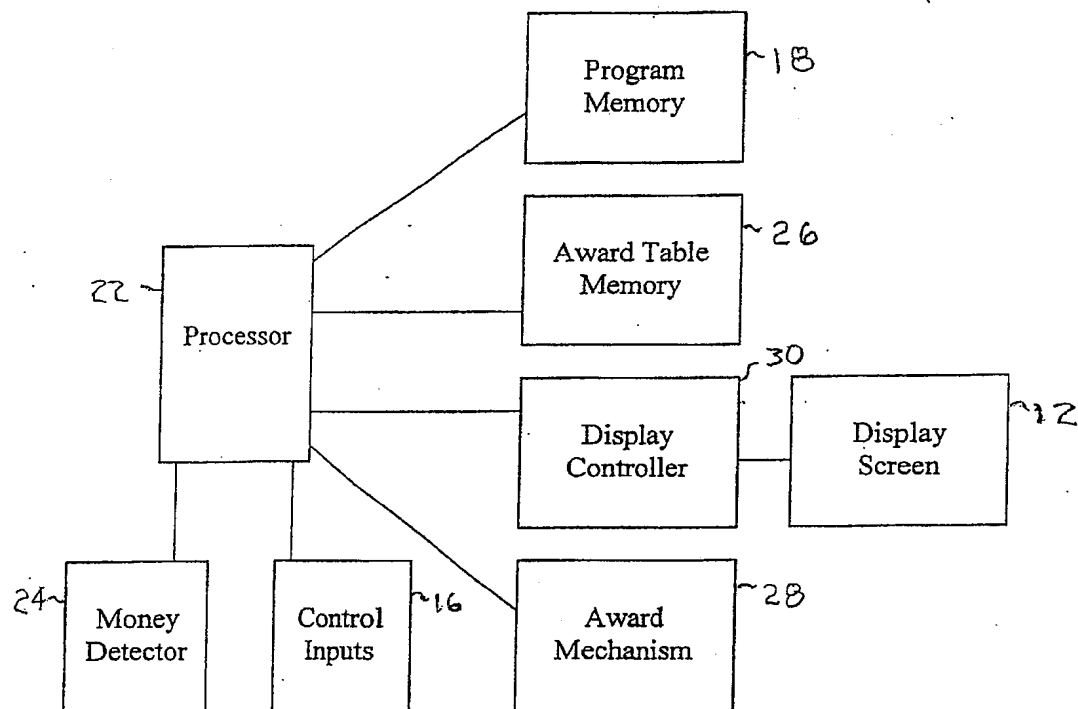
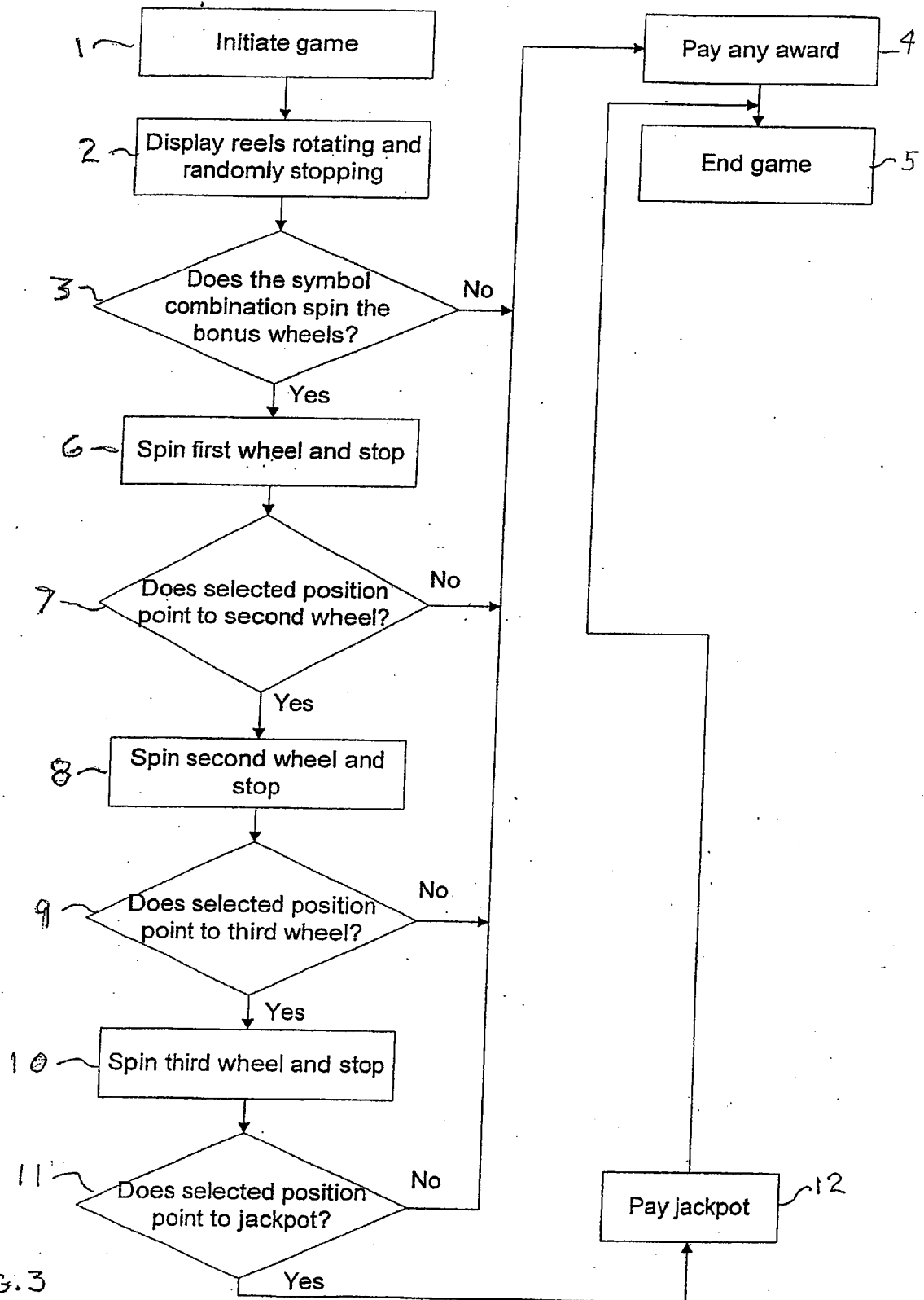


FIG. 2





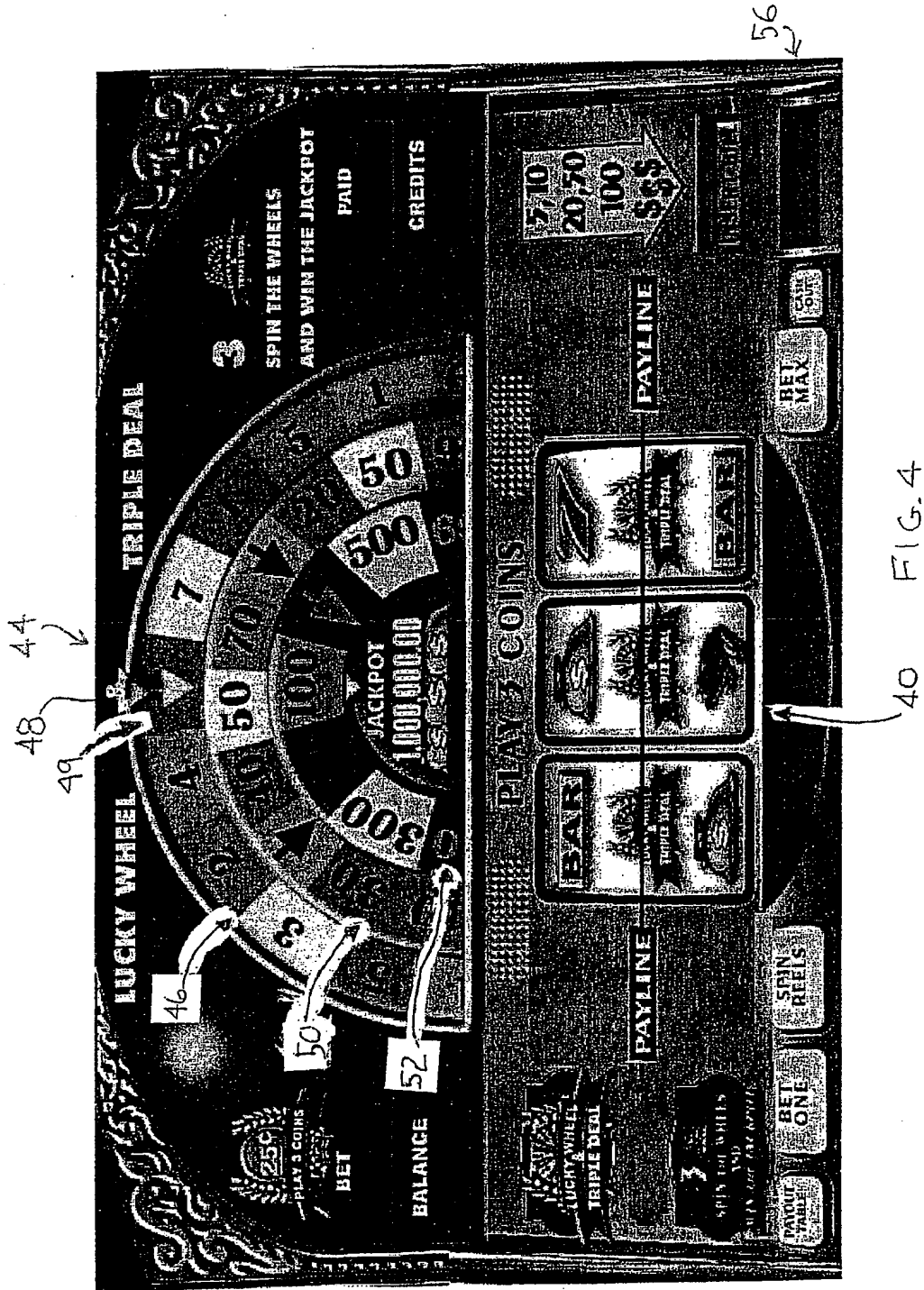
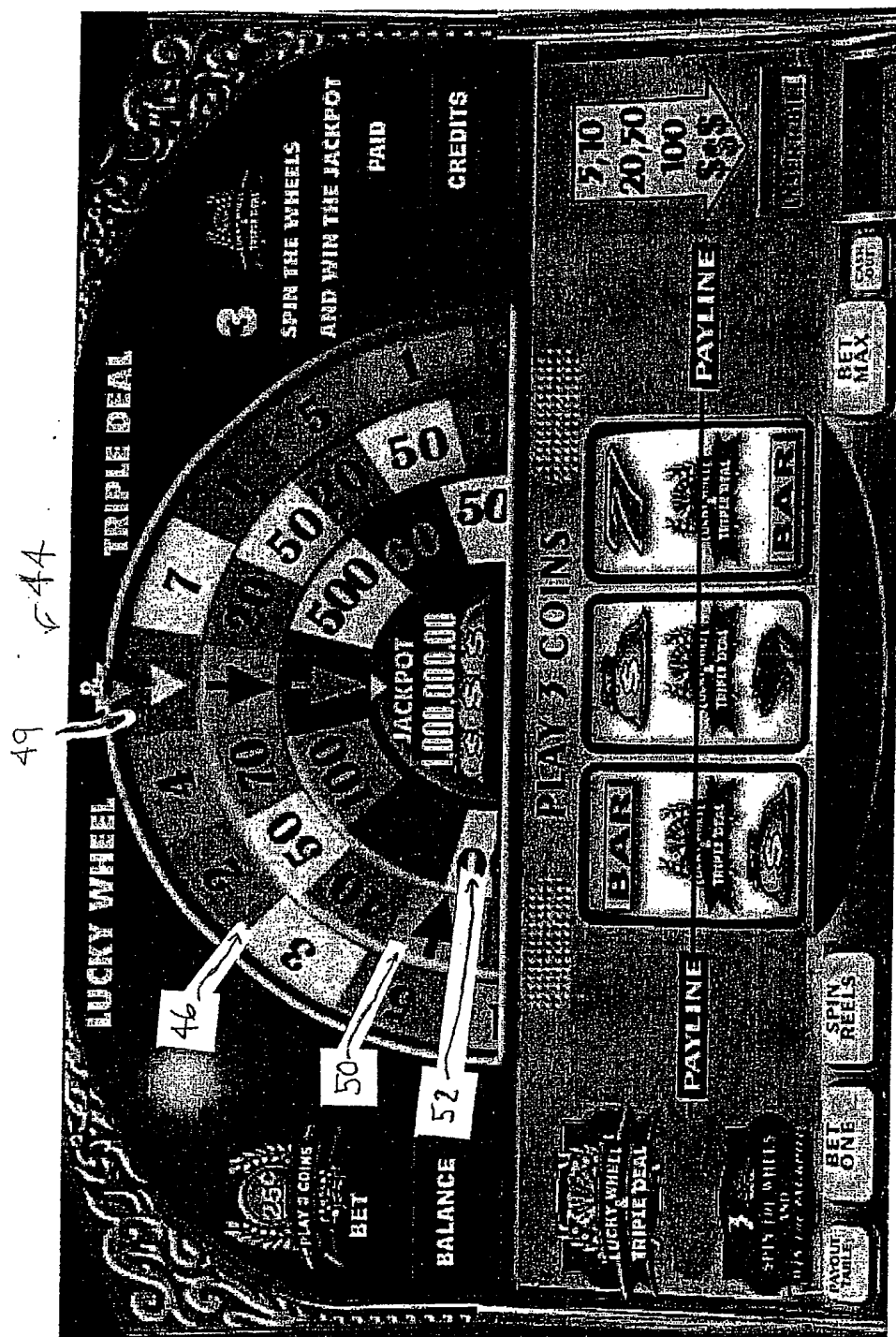


FIG. 4



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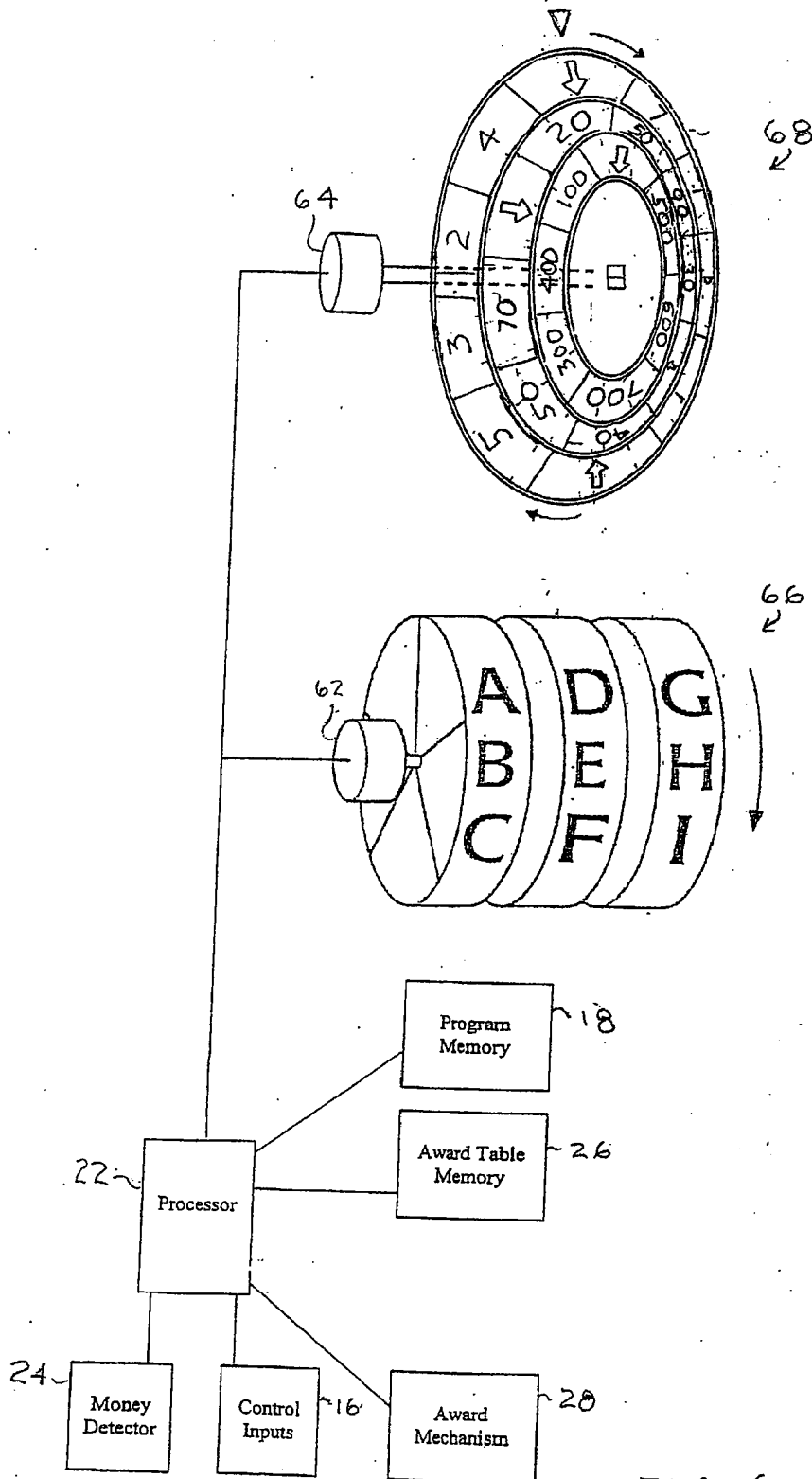


FIG. 6



PLAY 3 COINS A A A COMBINATION WILL PAY ADDITIONAL BONUS WHEELS PRIZE			
	1 coin	2 coins	3 coins
A A A	50	100	300
B B B	20	40	60
C C C	10	20	30
D D D	8	16	24
E E E	6	12	18
F F F	4	8	12
G G G	2	4	6

**BONUS GAME**  
(wheels rotation)

FIG. 7

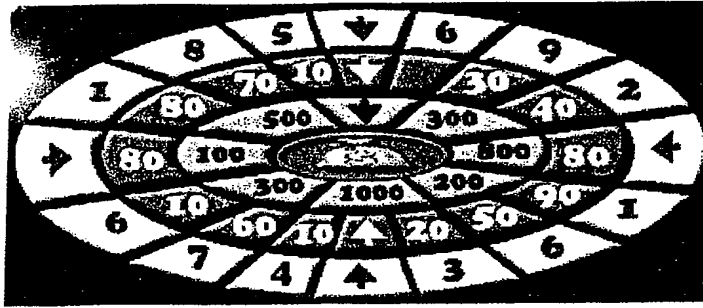


FIG. 8

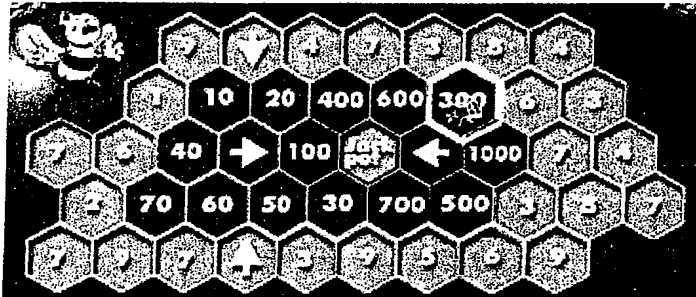


FIG. 9

6	5	1	5	1	8	↓	3	9	1
1	10	60	25	40	↓	90	80	90	8
4	40	100	300	↓	500	900	400	70	5
5	20	700	0123456789					100	90
→	90	200	500	900	400	300	700	40	7
3	10	40	90	10	99	30	↑	50	8
8	1	3	5	2	↑	1	5	1	5

FIG. 10

## GAMING DEVICE

This invention relates to a gaming device.

A very popular slot machine is called the "Wheel of Fortune"™. The Wheel of Fortune has three rotating reels for displaying symbols in a main game and, upon the reels displaying a certain combination of symbols, a large wheel spins. The large wheel has printed on it various payout awards, and the wheel randomly stops at a certain position to award the player the payout for that wheel position.

The Wheel of Fortune slot machine appeals to players due to the added excitement of a spinning wheel. What is desirable is a gaming technique that adds further excitement to increase player appeal.

The present invention seeks to provide an improved gaming device. According to an aspect of the present invention, there is provided a gaming device including:

- at least one processor for controlling a display device to display results of a primary game, first ones of said results representing an award to a player, second ones of said results representing an opportunity to play a secondary game, said secondary game comprising at least a first display of a first selector of first indicia and an additional display of at least one additional selector of additional indicia;

- if said results of said primary game comprise said second ones of said results, said at least one processor being operable to control said display device to display activation of said first selector of first indicia, some of said first indicia representing award amounts and at least one of said first indicia representing that said at least one additional selector of additional indicia is to select an award to a player, said additional indicia representing, on average, awards higher than awards represented by said first indicia;

- if said at least one of said first indicia is selected, said at least one processor being operable to control said display device to display selecting said additional indicia by said at least one additional selector; and

- said at least one processor being operable to control said display device to display an award to a player represented by selection of said first indicia or said additional indicia.

Various embodiments of games having payout wheels are described herein. In one embodiment, in a main or primary game, a plurality of reels displays combinations of symbols that signify instant awards, no awards, or the activation of a secondary game. The secondary game, forming part of the gaming system, consists of a plurality of wheels that provide special awards upon the display of a predetermined combination of symbols on the reels in the primary game.

In one embodiment, the plurality of wheels consists of a first wheel having relatively low payout awards associated with each position on the first wheel. The first wheel is spun and stopped to identify an award. At least one of the positions identifies that the award is to come from a second wheel, which has higher payout awards associated with each position on the second wheel. The second wheel is then spun and stopped to identify an award. There may also be a third wheel having award amounts higher than those on the second wheel, where the third wheel is activated upon a certain position on the second wheel being selected.

In one embodiment, the third wheel has a position which, when randomly selected, awards a player a jackpot value.

The awards provided by the wheels may be in addition to any award provided by the primary game that initiated the secondary game.

In one embodiment, only one wheel is spun at a time. In one embodiment, the wheels are concentric. Any number of wheels may be used.

The primary game may be any type of game, including those games displaying cards. The invention may be implemented as a video game, or use motor driven reels and wheels, or use a combination of motor driven reels or wheels and a video display of reels or wheels.

The invention is applicable to any type of gaming system, such as an on-line system using the Internet, a stand-alone gaming machine, or linked gaming machines.

Embodiments of the present invention are described below, by way of example only, with reference to the drawings, in which:

Fig. 1 is a perspective view of a video gaming machine which may incorporate software to carry out the embodiments described herein;

Fig. 2 illustrates basic hardware components in a conventional video gaming machine, where the program stored in the program memory carries out the particular game;

Fig. 3 is a flowchart illustrating the steps for carrying out one embodiment of the preferred game.

Figs. 4 and 5 illustrate sample displays on a CRT screen or other type of screen for an on-line gaming system, or a stand-alone gaming machine, or a linked gaming machine;

Fig. 6 illustrates an electromechanical reel and wheel assembly that can be used instead of, or in combination with, a gaming system using a video screen;

Fig. 7 illustrates a paytable; and

Figs. 8, 9, and 10 illustrate other displays of the bonus selectors.

Although the system may be carried out on any type of computer platform, such as a stand-alone gaming machine, linked-gaming machines, or an on-line gaming system, where a user may interact with a remote server on a conventional personal computer to play the game described herein, the game will be described with respect to a stand-alone gaming machine.

Fig. 1 illustrates a video type gaming machine 10 having a video screen 12, a coin input 14, and control inputs 16, such as buttons. Instead of buttons, a keyboard or touch screen may be used. For on-line gaming system, the display device would be a conventional monitor connected to the user's home computer.

Fig. 2 illustrates the hardware functional blocks in a conventional gaming machine. A program memory 18 contains computer instructions for allowing a processor 22 to carry out the various steps of the game. The hardware of Fig. 2 may be conventional and need not be described in detail. Processor 22 may be any type of microprocessor or any other device used to carry out a routine. A conventional gaming machine may be programmed to carry out the inventive game by changing the program in the machine's memory. For an on-line gaming system, the program may simply be downloaded into the user's home computer.

A typical stand-alone gaming machine also has a money detector 24, control inputs 16, an award table memory 26, an award mechanism 28 such as a coin hopper or means to provide a code on tickets or a magnetic card, a display controller 30, and a display screen 12. The award table memory 26 associates the final positions on the reels and wheels in

the machine with a monetary amount to be paid to the player. In an on-line system, the various control and memory functions would be carried out using shared resources in one or more computers. The display controller 30 receives relatively simply commands from processor 22 and converts the commands into complex pixel displays on screen 12.

Operation of one embodiment will be described with respect to the flowchart of Fig. 3 and the sample displays of Figs. 4 and 5.

In step 1 of Fig. 3, the game is initiated by any known technique such as by pressing a button, touching a display screen, pulling a handle, depositing money, depositing coded instruments, clicking a mouse, or by any other means. The initiation of the game causes the three reels 40 in Fig. 4 to spin (either physically or on a video screen) and randomly stop on three positions across a payline (step 2). There may be multiple paylines. The three symbols may constitute losing symbols or winning symbols, where the winning symbols provide an instant award. The three symbols may also be a combination of certain special symbols, such as shown in Fig. 4 by the "Triple Deal"™ symbols being displayed, in which case the bonus wheels 44 are activated as part of a secondary game. Step 3 illustrates the decision of whether the symbol combination on the reels 40 spin the bonus wheels 44. If the symbol combination does not spin bonus wheels 44, the process goes to step 4, where an award, if any, is paid to the player, and the game is ended (step 5).

If the special symbol combination appears across the payline (as shown in Fig. 4) to activate the bonus wheels 44, the game proceeds to step 6, where the first wheel 46 is spun. In the embodiment shown in Fig. 4, the first wheel 46 has relatively low payouts identified around its periphery. In one embodiment, the numbers around the wheel identify a multiplication of the total bet for that game. For example, if three coins are bet, and the first wheel 46 identifies that the award is "4," the bonus payout will be twelve coins.

After the first wheel 46 has been spun and stopped, if the indicator 48 does not indicate an award value but indicates a down-arrow 49 pointing toward the second wheel 50 (step 7), as shown in Fig. 4, the second wheel spins and randomly stops (step 8). The second wheel 50 has higher payout indicators on its periphery and, in one embodiment, these payout indicators are a multiple of ten times the payout indicators on the first wheel 46. An award to the player identified by the second wheel 50 is then paid out unless a down-arrow position on the second wheel 50 is selected (step 9), as shown in Fig. 5. In

such a case, the third wheel 52 is spun and randomly stopped (step 10). The third wheel 52, in the embodiment shown in Fig. 5, has award values that are a hundred times as great as the award values on the first wheel 46. If the stop position of the third wheel 52 is also a down-arrow (step 11), shown in Fig. 5, then a jackpot is awarded to the player (step 12).

There may be any number of down-arrows 49 on the wheels, and the award amounts may be any amount. Typically, the award amounts will be progressively higher with each successive wheel.

In addition to the bonus wheel amounts, the special symbol combination on the reels 40 that gives rise to the activation of the bonus wheels 44 may also pay instant award.

The process of Fig. 3 is carried out by the instructions in program memory 18 (RAM or ROM) in combination with processor 22.

As would be conventional, the various control inputs shown in Fig. 4, such as Bet One, Spin Reels, Bet Max, Cash Out, and Payout Table (which displays the payout table on the video screen), may be activated by using either a mouse, a touch screen, or physical buttons. Fig. 4 also shows a bill insert slot 56 that may be either virtual or actual.

By adjusting the award amounts and the number of down-arrows 49 on the bonus wheels 44, the probabilities of obtaining the various awards are easily adjustable.

Any number of bonus wheels 44 may be used, such as two, three, four, or more, and any configuration of the wheels may be used. For example, the wheels may be separate instead of concentric. Further, the wheels 44 may be in other forms, such as numeric displays on reels.

Fig. 6 illustrates an electromechanical version of the game where, instead of the game being completely carried out in software and displayed on a video screen, electric motors, such as stepper motors 62 and 63 (among others not illustrated), rotate the reels and bonus wheels 68. The operation of the machine is otherwise identical to that described with respect to Figs. 3-5. The position of the reels 66 and wheels 68 may be predetermined by the program software, and the reels and wheels may be spun so as to achieve the predetermined outcome. Since the angular positions of stepper motors are easily determined by the number of pulses provided to the stepper motors, the positions of the reels 66 and wheels 68 are easily determined using conventional techniques.

Fig. 7 is an example of a payout table that may be displayed on the display glass of a gaming machine and stored in the paytable ROM. The symbol combinations are shown in the left column, and the payouts per coin bet are in the remaining columns. Note that the spinning of the bonus wheels, using the paytable of Fig. 7, is only activated upon the outcome of the AAA (e.g., Triple-Deal™) symbol combination with the maximum 3-coin wager to encourage a maximum bet. Of course, the activation of the bonus wheels may be set for any game outcome.

Figs. 8-10 are examples of other displays that embody the concept of the present invention. In Fig. 8, the complete bonus wheels are visible, with the jackpot symbolized in the center.

Fig. 9 illustrates the various bonus levels in non-circular areas. The bonus values are shown in spaces representing honeycomb cells, and a bee randomly lands on a space in the appropriate level. If the bee lands on a bonus value, that bonus is received. If the bee lands on an arrow, the next level is activated.

Fig. 10 illustrates the bonus levels as rectangular rings, where a space in an appropriate level is randomly highlighted. If a bonus value space is highlighted, that bonus is received. If an arrow is highlighted, the next level is activated. The jackpot amount is displayed in the middle of the rings. Many other types of displays are suitable.

If the gaming concepts described herein are implemented in an on-line gaming system, the various positions of the reels and the wheels will be typically determined by a remote server, and the award will be paid to, for example, a player's account. The jackpot may be fixed or progressive. The game software may reside on any tangible medium, such as a CD ROM or a diskette, or may be transmitted over the Internet or via radio waves.

Additionally, the game may be carried out by a series of linked gaming machines, where the jackpot is progressive and common to all the gaming machines that are linked to the system.

While particular embodiments have been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from the scope of the appended claims.



The disclosures in United States patent application No. 10/123,268, from which this application claims priority, and in the abstract accompanying this application are incorporated herein by reference.

CLAIMS:

1. A gaming device including:  
at least one processor for controlling a display device to display results of a  
5 primary game, first ones of said results representing an award to a player, second ones of  
said results representing an opportunity to play a secondary game, said secondary game  
comprising at least a first display of a first selector of first indicia and an additional  
display of at least one additional selector of additional indicia;  
if said results of said primary game comprise said second ones of said results, said  
10 at least one processor being operable to control said display device to display activation  
of said first selector of first indicia, some of said first indicia representing award amounts  
and at least one of said first indicia representing that said at least one additional selector  
of additional indicia is to select an award to a player, said additional indicia representing,  
on average, awards higher than awards represented by said first indicia;  
15 if said at least one of said first indicia is selected, said at least one processor being  
operable to control said display device to display selecting said additional indicia by said  
at least one additional selector; and  
said at least one processor being operable to control said display device to display  
an award to a player represented by selection of said first indicia or said additional  
20 indicia.
2. A device as in claim 1, wherein said first selector comprises a first wheel, and said  
at least one additional selector comprises a second wheel.
3. A device as in claim 1, wherein said first selector and said at least one additional  
selector comprise rings.
- 25 4. A device as in claim 3, wherein said rings are rectangles.
5. A device as in any preceding claim, wherein said first selector and said at least  
one additional selector are adjacent one another.

6. A device as in any preceding claim, wherein said first selector and said at least one additional selector are displayed on a video screen.
7. A device as in any one of claims 1 to 5, wherein said first selector and said at least one additional selector are mechanical wheels.
- 5 8. A device as in any preceding claim, wherein said at least one additional selector comprises at least a second selector of second indicia and a third selector of third indicia, said third indicia representing awards, on average, higher than awards represented by said second indicia, at least one of said second indicia representing that said third selector is to select an award to a player.
- 10 9. A device as in claim 8, wherein at least one of said third indicia represents a jackpot award.
10. A device as in any preceding claim, wherein at least one of said additional indicia represents a jackpot award.
- 15 11. A device as in claim 1, wherein said first selector and said at least one additional selector comprise concentric wheels.
- 20 12. A device as in claim 11, wherein said first selector and said at least one additional selector are displayed on a video screen.
13. A device as in any preceding claim, comprising said display device.
- 25 14. A tangible medium containing a gaming software program for carrying out the steps of:
- displaying results of a primary game, first ones of said results representing an award to a player, second ones of said results representing an opportunity to play a secondary game, said secondary game comprising at least a first display of a first selector
- 30 of first indicia and an additional display of at least one additional selector of additional indicia;

if said results of said primary game comprise said second ones of said results, displaying activation of said first selector of first indicia, some of said first indicia representing award amounts and at least one of said first indicia representing that said at least one additional selector of additional indicia is to select an award to a player, said  
5 additional indicia representing, on average, awards higher than awards represented by said first indicia;

if said at least one of said first indicia is selected, displaying selecting said additional indicia by said at least one additional selector; and  
displaying an award to a player represented by selection of said first indicia or said  
10 additional indicia.

15. A medium as in claim 14, wherein said first selector comprises a first wheel, and said at least one additional selector comprises a second wheel.

16. A medium as in claim 14, wherein said first selector and said at least one additional selector comprise rings.

15 17. A medium as in claim 16, wherein said rings are rectangles.

18. A medium as in any one of claims 14 to 17, wherein said first selector and said at least one additional selector are adjacent one another.

19. A medium as in any one of claims 14 to 18, wherein said first selector and said at least one additional selector are displayed on a video screen.

20 20. A medium as in claim 14, wherein said first selector and said at least one additional selector are mechanical wheels.

21. A medium as in any one of claims 14 to 20, wherein said at least one additional selector comprises at least a second selector of second indicia and a third selector of third indicia, said third indicia representing awards, on average, higher than awards represented

by said second indicia, at least one of said second indicia representing that said third selector is to select an award to a player, said method further comprising:  
displaying said second selector and said third selector.

5 22. A medium as in claim 21, wherein at least one of said third indicia represents a jackpot award.

23. A medium as in any one of claims 14 to 22, wherein at least one of said additional indicia represent a jackpot award.

10

24. A medium as in claim 14, wherein said first selector and said at least one additional selector comprise concentric wheels.

25. A medium as in claim 24, wherein said first selector and said at least one  
15 additional selector are displayed on a video screen.

26. A data transmission transmitting a gaming software program for carrying out the steps of:

displaying results of a primary game, first ones of said results representing an  
20 award to a player, second ones of said results representing an opportunity to play a secondary game, said secondary game comprising at least a first display of a first selector of first indicia and an additional display of at least one additional selector of additional indicia;

if said results of said primary game comprise said second ones of said results,  
25 displaying activation of said first selector of first indicia, some of said first indicia representing award amounts and at least one of said first indicia representing that said at least one additional selector of additional indicia is to select an award to a player, said additional indicia representing, on average, awards higher than awards represented by said first indicia;

30 if said at least one of said first indicia is selected, displaying selecting said additional indicia by said at least one additional selector; and

displaying an award to a player represented by selection of said first indicia or said additional indicia.





27. A method comprising:  
displaying results of a primary game, first ones of said results representing an  
award to a player, second ones of said results representing an opportunity to play a  
5 secondary game, said secondary game comprising at least a first display of a first selector  
of first indicia and an additional display of at least one additional selector of additional  
indicia;  
if said results of said primary game comprise said second ones of said results,  
displaying activation of said first selector of first indicia, some of said first indicia  
10 representing award amounts and at least one of said first indicia representing that said at  
least one additional selector of additional indicia is to select an award to a player, said  
additional indicia representing, on average, awards higher than awards represented by  
said first indicia;  
if said at least one of said first indicia is selected, displaying selecting said  
15 additional indicia by said at least one additional selector; and  
displaying an award to a player represented by selection of said first indicia or  
said additional indicia.
28. A method as in claim 27, wherein said first selector comprises a first wheel, and  
said at least one additional selector comprises a second wheel.
- 20 29. A method as in claim 27, wherein said first selector and said at least one  
additional selector comprise rings.
30. A method as in claim 29, wherein said rings are rectangles.
31. A method as in any one of claims 27 to 30, wherein said first selector and said at  
least one additional selector are adjacent one another.
- 25 32. A method as in any one of claims 27 to 31, wherein said first selector and said at  
least one additional selector are displayed on a video screen.



33. A method as in claim 27, wherein said first selector and said at least one additional selector are mechanical wheels.

34. A method as in any one of claims 27 to 33, wherein said at least one additional selector comprises at least a second selector of second indicia and a third selector of third indicia, said third indicia representing awards, on average, higher than awards represented by said second indicia, at least one of said second indicia representing that said third selector is to select an award to a player, said method further comprising:  
displaying said second selector and said third selector.

35. A method as in claim 34, wherein at least one of said third indicia represents a jackpot award.

36. A method as in any one of claims 27 to 35, wherein at least one of said additional indicia represents a jackpot award.

37. A method as in claim 27, wherein said first selector and said at least one additional selector comprise concentric wheels.

38. A method as in claim 37, wherein said first selector and said at least one additional selector are displayed on a video screen.



INVESTOR IN PEOPLE

Application No: GB 0306589.3  
Claims searched: 1-38

Examiner: Stuart Purdy  
Date of search: 28 July 2003

## Patents Act 1977 : Search Report under Section 17

### Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance	
X	X: 1-10, 12-23, 25-36 Y: 11, 24 & 37	US 6168520 B1	(IGT) see figure 6 and column 4 lines 3-24, column 5 lines 35-36, column 8 lines 33-36 and column 10 lines 1-11 and 44-64;
XE	1, 3-6, 8-10, 13, 14, 16-18, 21-23, 26, 27, 29-31, 34-36	EP 1298607 A2	(IGT) see figure 7, column 11 line 19, column 11 line 20-22, and column 11 line 49-column 12 line 12;
Y	11, 24 & 37	WO 02/04080 A1	(ARISTOCRAT) see page 3 lines 32-36 and page 5 lines 6-13.

### Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

### Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>v</sup>:

G4V

Worldwide search of patent documents classified in the following areas of the IPC<sup>7</sup>:

G07F

The following online and other databases have been used in the preparation of this search report:

WPI, JAPIO, AND EPODOC